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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

MULLINS, Joe H.

Serial Number: 09/389,085

Filed: September 2, 1999

For: LOW FREQUENCY FEEDBACK
CONTROLLED AUDIO SYSTEM

Examiner: GRIER, Laura A.

Art Unit: 2644

Docket No.: UNME-0019-1

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

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Technology Center 2600

AMENDMENT

Sir:

This is in response to the Office Action mailed on February 1, 2002, the period of response to which is set to expire on May 1, 2002. Please amend the above-captioned application, without prejudice or disclaimer, as follows:

IN THE CLAIMS

Please amend the claims, without prejudice or disclaimer, as indicated below (A redlined version of each of the amended claims accompanies the present Amendment):

✓
Please cancel claim 11 without prejudice or disclaimer.

Please amend claims 1 and 14 as follow:

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1. (Amended) An audio system, comprising:

a cabinet having an opening in a first wall thereof;

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a first speaker for emitting audio output, said first speaker being mounted inversely at said opening of said cabinet;

a passive radiator for emitting audio output, said passive radiator mounted in said cabinet opposite said first speaker; and

a sensor for sensing pressure caused by the audio output from said first speaker, said sensor being mounted in said cabinet by a sensor mounting structure joined to said cabinet, said sensor mounted in such a manner as to receive a signal from both the speaker and the passive radiator.

2. The audio system of claim 1, wherein said audio system comprises a low frequency audio system.
3. The audio system of claim 1, wherein said sensor comprises a second speaker.
4. The audio system of claim 1, wherein said sensor mounting structure comprises a damped elastic mounting structure.
5. The audio system of claim 1, wherein said sensor mounting structure comprises an enclosure mounted on said first wall and including said opening in said first wall.
6. The audio system of claim 1, further comprising a means for adjusting the audio output of said first speaker based on said pressure sensed by said sensor.

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7. The audio system of claim 1, wherein said first speaker has a speaker maximum width and said sensor has a sensor maximum width, and said sensor maximum width is smaller than said speaker maximum width.
8. The audio system of claim 1, wherein said sensor has a signal-to-noise ratio of at least of 100 dB.
9. The audio system of claim 1, wherein said audio system has a feedback factor of 30 to 50 dB when said first speaker operates at a frequency of about 15 to 300 Hz.
10. The audio system of claim 1, further comprising acoustic absorbing material contained in said cabinet.
12. The audio system of claim 1, wherein said first speaker comprises an electrodynamic planar speaker.
13. The audio system of claim 1, wherein said first speaker comprises an electrostatic planar speaker.

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14. (Amended) A method for improving acoustical accuracy in an audio system comprising the steps of:

mounting a first speaker inversely in an opening of a wall of a cabinet;

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mounting a passive radiator in said cabinet opposite said first speaker;
sensing pressure from audio output from the first speaker and the passive radiator; and
adjusting the audio output from the first speaker based on the pressure sensed in said sensing step.

15. The method of claim 14, wherein the audio system comprises a low frequency audio system.

16. The method of claim 14, wherein the sensor comprises a second speaker.

17. The method of claim 14, wherein said sensing step is performed by a sensor having a signal-to-noise ratio of at least of 100 dB.

18. The method of claim 14, wherein said method produces an audio system feedback factor of 30 to 50 dB when the first speaker operates at a frequency of about 15 to 300 Hz.

19. The audio system of claim 14, wherein said first speaker comprises an electrodynamic planar speaker.

20. The audio system of claim 14, wherein said first speaker comprises an electrostatic planar speaker.